

code into language, must always form a very important element in the commercial value of all high-speed arrangements, when the speed is beyond that of the public requirements of the circuit.

Alexander Bain's chemical printing telegraph, invented in 1846, of which this American automatic machine is only a modernised adaptation, is shown at Fig. 25. It combined methods of arranging, transmitting, and receiving electrical telegraph communications, in which mechanically-composed communications were transmitted through electric circuits, and received by chemically prepared surfaces, both apparatus being kept in motion by mechanical means, without the aid of magnets. The apparatus consisted of a frame containing a driving power by which a rotatory motion was imparted to the metal drum B, placed in connection with the earth by means of the contact springs E E. The paper strip P P, chemically prepared by being immersed in a solution of sulphuric acid and prussiate of potass to receive the sequence of currents transmitted through the wire from the "transmitter," is wound upon the drum A, and is drawn forward over the revolving earth contact B at a uniform speed by reason of the pressure of the break roller M, which may, whenever the paper is not required to advance, be withdrawn by the lever H working on the centre R, and kept in position either way by the action of the spring roller w. An insulated metallic style D, in connection with the line wire f, and furnished with the necessary screw adjustments a, b, c, is arranged to press uniformly upon the chemically-prepared paper as it passes over the earth drum B. The style D can also be removed from pressing contact with the paper ribbon when required, as indicated by the dotted outline. When therefore the style D is passing over the surface of the prepared paper, and electric currents are passed through the line wire f from the distant station, the electric circuit will be completed through the paper ribbon P, and the metallic drum B, with the earth E, and in the passage of the current, the iron in the chemical solution is decomposed and a dark blue mark becomes visible upon the paper corresponding in length to the duration of the current; so that if the Jacquard ribbon at the distant station is perforated into the necessary length of holes to represent the sequences of dots and dashes in the Morse code, to form letters and words, the chemical decomposition from the style D will be an accurate replica of the distant message in the "dot" and "dash" symbols. It was thus that in 1846 Alexander Bain, the clever and ingenious Edinburgh watchmaker, originated a system of electric automatic chemical Jacquard printing, which even at the present day is scarcely understood, and which in all probability is left to American skill to develop. Its extreme simplicity and wonderful chemical sensibility speak volumes in its favour, provided, as has been already observed, such extreme velocities can be profitably worked in this small planet of ours.

(To be continued.)

#### RECENT FRENCH MATHEMATICAL PUBLICATIONS

M. CHASLES is reprinting a new edition of his celebrated work, "Aperçu Historique :" the first part has been already issued. The learned geometer has made no alteration in the book, which was written many years ago and long before he had been led to assert frivolous claims in favour of Pascal, and no allusion is made to the Newton forgeries. The whole work will cost no more than 20s., only one-fourth of the selling price of the old edition, which has for some time been very scarce.

There has been in France a revival of interest in the subject of imaginary quantities. Thus, a translation by Laisant of Bellavitis's "Calcul des Equipollences" has

been published lately. It is regarded by Bellavitis himself as a system of quaternions in one plane, and thus is somewhat analogous to the efforts made in England to popularise the great Hamilton's theories. But it is only a partial effort, as Bellavitis's results do not admit of being generalised so as to apply to solid geometry.

M. Hôtel, whose name is connected with the publication of a series of useful tables, will very likely be more successful in this respect, as he is preparing a "Theory of Quaternions."

The same mathematician has edited a reprint of a work on the "Geometrical Representation of Imaginary Quantities," originally published in 1806 by Argand. One of his objects appears to have been to defend the rights of his illustrious countryman. But they are not so disregarded in England as the author seems to suppose.

The third and concluding part of the new edition of Briot and Bouquet's "Theory of Elliptic Functions" has appeared. It is quite a new book, though professing to be a second edition of the small octavo volume which became rapidly so popular amongst mathematicians.

M. Paul de Saint Robert has published a third and concluding volume of his interesting "Memoirs," several of which were published in English in the *Philosophical Magazine*. Amongst these valuable papers, which are here reprinted, we must not neglect to notice the "New formulæ for determining the altitude from barometric observations." These formulæ embody the results of the observations taken by Mr. James Glaisher in some of his aeronautical ascents. M. Saint Robert in this way improves the well-known Laplace's formulæ, which were based only on the Ramont's observations taken in the Pyrenean ranges; and takes into account the carefully observed facts which had been neglected in England.

#### NOTES

THE Committee on the Loan Exhibition of Scientific Apparatus met in the Science Schools at the South Kensington Museum yesterday. It has been determined to postpone the exhibition till March 1876, and from the strength of the Committee appointed and the interest taken in the scheme by scientific societies, we may expect the collection to be unique.

IT will be of interest to geologists to know that Capt. Feilden, R.A., the naturalist of the senior ship of the Arctic Expedition, in addition to making the observations on the birds of Northern Europe, Malta, India, China, and North America, which will be found scattered through the pages of the "Zoologist" and quoted by Prof. Newton and Messrs. Sharpe and Dresser in various works, has given much attention to the palæontology of many of these countries, especially to the Miocenes of Malta and the Faroe islands, and the Mastodon beds of South Carolina. By permission of Prof. Ramsay, V.P.R.S., the Director-General of H.M. Geological Survey, Capt. Feilden has also recently been shown the method employed in carrying out geological field-work by that Survey, by one of its staff, Mr. De Rance.

THE French Academy of Sciences, at its sitting on Monday last, received the report of M. Fleurais, the head of the Transit of Venus Expedition to Pekin. The observations were very satisfactory indeed, the four contacts having been photographed with complete success. The weather was very boisterous all the day long, but at the four important moments the observers were favoured by a total absence of clouds. They succeeded in executing a map of Pekin, in spite of the obstacles placed in their way by the natives. The dimensions are 8,000 metres by 7,000, and the length of the walls is 33 kilometres. The instruments set up by the missionaries last century are in perfect

order. The instruments sent by the Academy to China are to remain there, and perhaps a permanent observatory may be established.

PROF. JAMES DEWAR, in resigning his post of Chemist to the Highland Agricultural Society, on his appointment to the Jacksonian Chair, Cambridge, has told that Society some wholesome truths, which we hope they will take to heart. Mr. Dewar writes:—"After what has occurred, it will hardly be necessary for me to say anything about what might have been had the chemical department been rearranged in the way I naturally anticipated after the death of Dr. Anderson. You are aware I intended prosecuting investigations in vegetable physiology, had the proper means been placed at my disposal; and the desire to do so was the main reason of my leaving the University. As it seems, however, the opinion of a portion of the Society that an agricultural chemist (so-called by the uninitiated, because his business is chemical analyses and the manipulating of the farming interests) rather than a scientific chemist would be best qualified to discharge the duties of the office of chemist, I have considered it my duty to accept the Cambridge Professorship as the best means of getting out of a false position. I still trust, however, the Society will ultimately see that this office of chemist will never be properly filled except by one thoroughly trained in scientific research, and this, the making him a real agricultural chemist, will depend on the means placed at his disposal for applying his scientific knowledge to agriculture."

WE are glad to see that the University of Glasgow is doing what it can to promote experimental investigation among its students; for this purpose the following two prizes are offered:—1. In Natural Philosophy, the Cleland Gold Medal, for the best "Experimental Determination of Magnetic Moments in Absolute Measure." All students of the Natural Philosophy Class in Session 1874-75, or Session 1875-76, may be competitors. 2. The Watt Prizes of 10/- for the best "Numerical, Graphic, and Experimental Illustrations of Fourier's Solutions of Problems in Thermal Conduction." Cooling of a cylinder to be worked out *numerically* in one or more cases: cooling of a globe may be illustrated *experimentally* in one or more cases. All matriculated students of the University in Session 1875-76, who have finished, or who on the 1st day of May, 1876, shall finish a regular course of Languages and Philosophy, may be competitors. Two or more competitors for the prize may work together and give in a joint essay; and two prizes will be given in case of sufficient merit. The Physical Laboratory of the University will afford the requisite experimental means for candidates for the Watt and Cleland Prizes. When will Oxford and Cambridge follow such a good example?

IT is with great regret that we record the death, in his fifty-fourth year, of Admiral Sherard Osborn, C.B., F.R.S., which took place suddenly on Thursday night last. Admiral Osborn's name is well known in connection with Arctic exploration, and he was to have read a paper last Monday on the Arctic Expedition before the Royal Geographical Society. He was born April 25, 1822, entered the navy in 1837, and served in the East Indies and in China. He obtained his commission as lieutenant in 1846, and three years later was selected as a volunteer for the Arctic Expedition, under Capt. H. T. Austen, sent in search of Sir John Franklin, being appointed to command the *Pioneer*. He afterwards served with distinction during the Russian war, in China, and in Mexico. In 1864 Capt. Osborn was appointed to the command of the turret-ship *Royal Sovereign*, and was afterwards for several years managing director of the Great Indian Peninsular Railway at Bombay. Admiral Osborn naturally took a keen interest in the Arctic Expedition which is so soon to leave our shores.

THE following naturalists have been elected foreign members of the Linnean Society of London, viz.: Alexander Agassiz,

H. E. Baillon, Ferdinand Cohn, M.D., A. de Quatrefages, and F. Parlato.

DR. G. J. Allman, F.R.S., has been elected Examiner in Zoology, and Dr. M. T. Masters, F.R.S., Examiner in Botany to the University of London.

AN outline of the lectures on the Invertebrata being delivered at Edinburgh University by Prof. Huxley is being published in the *Medical Times and Gazette*; the first instalment appeared in last Saturday's number.

OUR readers are familiar with the name of the Penikese School of Zoology in the United States, and last week we gave the programme of a similar institution for the practical study of Geology. The faculty of Harvard College are, we believe, arranging for similar schools for other branches of scientific instruction, and have announced three separate courses, besides the one on Geology:—One of Chemistry, under Prof. J. P. Cook, to be held at Cambridge. The second is a course in Phenogamic Botany, to be given in the Botanical Laboratory at Cambridge, by Prof. Goodale. The Botanical Garden and Herbarium will furnish material for instruction in Structural and Systematic Botany. All necessary appliances, including dissecting and compound microscopes, will be furnished by the instructor. The third course is that of Cryptogamic Botany, under Prof. W. G. Farlow. This course will be held at some point on the seashore, possibly Provincetown, or other suitable locality, and in this respect will correspond to the plan of the summer school of zoology at Penikese. Twelve lectures will be devoted to the Algae and six to the Fungi. A laboratory will be established, and excursions will be made throughout the course by the students in company with Prof. Farlow.

FROM Baron Mueller, Government Botanist of Victoria, Australia, we have received his last report of the progress and condition of botany in that colony. From a scientific point of view, and equally in regard to the advance of applied botany, it contains many interesting particulars. The learned writer, who has done so much to promote the development of the vegetable resources of Australia, laments the withdrawal of the working votes of his department, and his removal from the directorship of the Botanic Garden, as he is thereby deprived of the means of conducting his researches. We glean the following notes from this report. The vegetation (exclusive of some of the lower cryptogams) of the whole of Australia is estimated at 11,000 species. The number of grasses is about 250 species. Numerous experiments have been made to ascertain the quality and practical working of various fibres, oils, tars, acetic acid, gums, resins, starch, potash, paper materials, dyes, &c., obtained from native and introduced plants, a complete list of which is appended to the report. In some experiments on rabbits with the tubers of *Burchardia umbellata* and *Anguillaria australis*, it was ascertained that although belonging to a doubtful family, they contain no noxious principle. In the search for jalap in the tubers of indigenous terrestrial orchids, the common *Microtis porrifolia* gave the best and highly satisfactory results. In drying, the roots of this species evolve a slight violet odour, and ten grains of the dry powder produce one ounce of good pale mucilage, free from bitterness. The tubers of *Thelymitra aristata*, although still richer in mucilage, are slightly bitter and of a brownish tinge. Very much has been effected in the distribution of the seeds of the gum trees (*Eucalyptus*), of which there are 140 species in Australia, and in testing the qualities of the numerous products of these valuable trees. In a trip to the forest regions of the Upper Yarra last year, Baron Mueller measured some trees of *Eucalyptus amygdalina*, var. *regnans*, which were approximately 400 feet in height. The magnificent grass *Festuca dives* was found in the same region growing to a height of 17 feet on the

borders of rivulés. For educational purposes in the colonial schools, 100 sets of native plants have been dried and mounted, each set containing fifty species. Since the publication of the last report about fifty new genera have been added to the flora of Australia, including many of great interest in phytogeography. Thus the genera *Corynocarpus* and *Carmichaelia*, previously only known from New Zealand, have been discovered in Australia. A species of *Ilex* (holly) has also been found, and an elm belonging to the section *Microptera*. About fifteen of the genera are absolutely new to science.

THE excellent collection of Madeira plants formed by the late Rev. Mr. Lowe, who, with Mrs. Lowe, was lost last year in the wreck of the *Liberia*, was deposited in the Herbarium at Kew some months since, and is, we understand, to be divided between the British Museum and the establishment named, the latter taking the *uniques*. It is fortunate that so valuable a collection has become public property, as it contains the types of the lamented gentleman's new species, and specimens of many things that are now exceedingly rare in the islands. In private hands it might have been neglected, and certainly would have been inaccessible to most botanists.

IN the appendix to the United States Coast Survey Report for 1872, now in the press, is a report by Mr. W. H. Dall on the tides, currents, and meteorology of the Eastern Aleutian region and the North-east Pacific, accompanied by explanatory diagrams. Mr. Dall's observations on the oceanic currents, which are here tabulated and discussed up to the date of the report, are of special interest as being the first series undertaken with a direct view to the solution of the problems in question, and result in the proof of the existence of a reflexed northerly arm of the great easterly North Pacific current, denominated by him the Alaska current, which had previously been surmised from isolated observations and theoretical considerations. Mr. Dall has been enabled to determine the rate and dimensions of several portions of this current, and maximum, minimum, and mean annual temperature. The existence of definite oceanic currents in the eastern half of Behring Sea is shown to be very doubtful. Some important generalisations on the relations of the Pacific and Behring Sea tides to each other are made, and the peculiarities of the compound tides of this region are graphically indicated by diagrams in a new method, original with the author, and possessing some interest for those studying these problems. The report is accompanied by numerous hydrographic memoranda and tables of meteorological, current, and tidal observations.

THE figure to the letter in last week's NATURE (p. 7), signed X, "On the rôle of feet in the struggle for existence," does not quite illustrate the author's meaning. He intended to draw the same footprint in both cases, but in the case shown in the cut on the left, each footprint should be advanced straight forward in the line of the previous one, while in the other it should be advanced obliquely, leaving a large part of the outline of the previous one clearly marked.

A MEETING was held on Monday last in the theatre of the Royal Institution, Mr. A. J. Mundella, M.P., in the chair, for the purpose of considering the best mode of extending to London the benefits of the Cambridge University Extension Scheme, at which the following gentlemen, among others, were present:—Sir J. Lubbock, Bart., M.P., Dr. L. Playfair, M.P., Dr. W. B. Carpenter, F.R.S., Dr. J. H. Gladstone, F.R.S., Sir H. Cole, C.B., Mr. S. Morley, M.P., Prof. Fawcett, M.P., Mr. T. Hughes, Q.C., Hon. G. Brodrick, Rev. W. Rogers, Mr. H. C. Sorby, F.R.S., and Mr. Jas. Stuart. After Mr. Stuart and Mr. Sorby had explained the object of the meeting, the following resolution was carried:—"That this meeting, having heard Mr. Stuart's statement, considers it desirable to introduce into London the Cambridge University Extension Scheme." A pro-

visional committee was appointed to carry out the objects of the meeting, consisting of Mr. S. Morley, Mr. Mundella, Mr. Jas. Stuart, Rev. W. Rogers, Mr. T. Hughes, Mr. R. N. Phillips, Dr. Carpenter, Mr. W. L. Birkbeck, Mr. H. C. Sorby, and Mr. G. M. Norris.

THE regular annual meeting of the U.S. National Academy of Science took place at the Smithsonian Institution in Washington on the 20th of April, and continued three days. The attendance was about the same as usual, there being some twenty-five members present out of the seventy-five. Numerous papers of much scientific interest were brought forward. In accordance with the rules of the Academy, five new members were elected. These are: Prof. R. E. Rogers, Professor of Chemistry of the University of Pennsylvania; Prof. Asaph Hall, one of the astronomers at the Washington Observatory; Prof. Alpheus Hyatt, curator of the Natural History Society of Boston; Prof. Joseph Le Conte, of the University of California; and Mr. Lewis H. Morgan, of Rochester. All these gentlemen are eminent in their respective branches of science, and constitute a valuable addition to the membership of the Academy, which now embraces about eighty individuals, selected from the representative men of science throughout the United States. The only loss which the Academy has experienced by death during the year is, as stated by the president, that of Prof. Jeffries Wyman.

SIR CHARLES REED, as a member of the Gresham Committee, writes to the *Times*, giving the arrangements which have been made for the future conduct of the Gresham Lectures. The lectures are not in future to be delivered in the Latin tongue. The times of delivery are to be fixed, not by the lecturers, but by the Committee. The lecturers are required to deliver their own lectures, and the nomination of a substitute is allowed only in case of illness. The appointment of the lecturer is for one year, securing to the Committee an opportunity of annual revision. It will be seen that the Committee have taken a step in the right direction, and we hope that it is only the first step to a radical reform.

A scientific Society has been formed in Bedford, under the title of the Bedfordshire Natural History Society and Field Club.

IN reference to Mr. Fordham's letter in last week's NATURE, in which he states that in his part of the country the cowslip is very abundant but the primrose is not found, Mr. J. J. Murphy asks, what part of the country Mr. Fordham means? The opposite is true at Dunmurry, Co. Antrim, where there is plenty of primroses, but few if any cowslips.

WE are glad to see that at the great International Exhibition to be opened at Philadelphia next year, a Department (VII.) is to be devoted to "Apparatus and Methods for the Increase and Diffusion of Knowledge." The following are the groups into which the department is divided:—Educational apparatus and methods. Typographic aids to the preservation and dissemination of knowledge, books, periodicals, newspapers. Charts, maps, and graphic representations. Telegraphic instruments and methods. Instruments of precision, and apparatus of physical research, experiment, and illustration. Meteorological instruments and apparatus. Mechanical calculation—indicating and registering apparatus, other than meteorological. Weights, weighing, and meteorological apparatus—measures and coins. Chronometric apparatus—time-keepers of all kinds, watches, clocks, &c. Musical instruments and acoustic apparatus. Under Department X. also there are two groups which might be classed along with these:—Education: illustration of the various systems and accessories of education, from the infant school to the University, including special schools of science and art, libraries, &c. Institutions, Societies, and Organisations having for their object

the Promotion of Science : illustrations of the rise, progress, and results of the various organisations for the promotion of science ; models, drawings, descriptions, and statistics.

MR. STANFORD has just published a North Polar map, superior in most respects to anything we have seen. It embraces a circle of forty degrees from the pole, thus including the whole of England. It exhibits faithfully all the circumpolar lands hitherto discovered, and in bold red letters shows the points reached by all the most important discoverers, with the date of discovery, from Sebastian Cabot down to Payer and Weyprecht ; even the spot where it is hoped that H.M.S. *Discovery* will winter is indicated. By means of dark and light blue, the usual limits of the ice and open water are clearly shown, and the whole execution of the map reflects the greatest credit on Mr. Stanford's establishment.

WE have seen an ingenious scientific apparatus which entirely obviates the use of matches or tapers, and does away with the attendant danger in lighting gas. It consists of a small bichromate of potash battery, the zinc plate of which is so arranged that by the pressure of the finger it can be immersed in the exciting fluid and put the battery in action. Rising from the top of the battery is a light brass stem, like a taper-holder, but in the form of a swan's neck, terminating in a little bell, within which the two "poles" of the battery are united by a spiral of platinum wire ; this wire, when the battery is put in action by the immersion of the zinc plate, becomes white hot, and will instantly ignite the gas if held over the open burner. The name which the maker, Mr. Horatio Yeates, has given to this happy contrivance is the "Galvano-Pyreon, or Voltaic Gas-lighter."

M. ELIE DE BEAUMONT left a library containing a number of valuable scientific books, which his nephew and heir has presented to the Geological Survey of France, of which his uncle was Director. The grant includes more than 2,000 volumes relating to geology, and 600 maps.

WE formerly mentioned that the widow of the late General Poncelet founded a few years ago a prize to be awarded by the Institute. It was a handsome sum of money to be given every two or three years to the author of the best essay on Mechanics. Last week Madame Poncelet sent to the Academy a large number of copies of the *Oeuvres Complètes* of her husband, which were completed only last month, with the request that each successful competitor for the Poncelet Prize should be presented with a copy. But as the stock would be exhausted in the course of five or six centuries, the careful widow has created a special accumulating fund providing for a new edition in the year 2600 A.D.

THE Paris Acclimatisation Society held its anniversary meeting on the 6th of May, under the presidency of M. Drouyn de Lhuys. M. Pichot gave a long and interesting address on acclimatisation in Egypt under the Pharaohs. Many prizes were awarded for practical results obtained in the way of introducing new kinds of animals into France. One of these was given by M. Joseph Cornely, for having succeeded in the multiplication of the kangaroos left in a state of liberty.

THE additions to the Zoological Society's Gardens during the past week include a Guinea Baboon (*Cynocephalus sphinx*) from West Africa, presented by Mr. Lionel Hart ; a Yellow-shouldered Amazon (*Chrysotis ochroptera*) from South America, presented by Miss M. Sutherland ; a Molucca Deer (*Cervus moluccensis*), a Pampas Deer (*Cervus campestris*), born in the Gardens ; two Chinese Jay-Thrushes (*Garrulax chinensis*) from China, purchased ; a Patas Monkey (*Cercopithecus ruber*) from West Africa ; a Hairy Tree Porcupine (*Cercolabes rupestris*), a Rock Cavy (*Cerodon rupestris*) from Brazil, deposited.

#### NATURAL HISTORY OF KERGUELEN'S ISLAND \*

IT is difficult, owing to the inexactness of the charts, to inform you of the positions of the Astronomical Stations in whose neighbourhood I have been able to work in this island. The German station is in Betsy Cove, the American at Molloy Point, Royal Sound. The English stations also are in this Sound, the second being situated about three miles N. by W. of Swain's Haulover. The first English station is between these last two on the main land, six or seven miles N.W. of Three Island Harbour, in what will be called Observatory Bay. Two days before the Transit of Venus a party under Lieut. Goodridge, R.N., was detached from the first English station to observe the transit from a position which he selected near the base of Thumb Peak. I have not yet been able to visit Betsy Cove.

Observatory Bay is one of the minor inlets of a peninsula comprised between two narrow arms of the sea. One of these runs up from the Sound, along the western flank of the hills adjacent to Mount Crozier, several miles, and terminates at a distance of three or four hours to the north of us, and about four miles from the inlet near Vulcan Cove. The other arm, opening nine or ten miles away to the southward, proceeds in a north-easterly direction to within three or four miles of the former, and no great distance from Foundry Branch.

Besides the inlets of the sea, numerous freshwater lakes present obstacles to inland travelling. Some in this neighbourhood are two or three miles in length, but in general they are not more than a mile long. They are usually shallow, and appear to be uninhabited by fish. The bogs and streams in this vicinity are not impassable, but can be traversed with ease if ordinary care be taken.

The most salient features of the landscape are the basaltic hills, with irregular terraces of rock on their sides, and broken cliffs at their summits. In lieu of grass, their slopes are clothed with banks and boulder-like clumps of *Azorella selago*, excepting where rich damp loam affords a soil suitable for the *Acacia* and the *Pringlea*. Here and there a fern (*Lomaria*) and grass (*Festuca*) grow in the interspaces of the other plants.

The climate of Royal Sound is far warmer and drier than we were led to expect it would be. In November the weather was very pleasant ; since then it has deteriorated, though the snow has not again covered the ground as it did when we first arrived. Probably the previous accounts of its meteorology were based upon observations taken in parts of the island where bad weather prevails ; or it may be that the condition of the country in winter has been presumed to be constant throughout the year. In one respect we were rightly informed ; for usually when there is no breeze there is a gale. A calm day is an exceptional event. Meteorological observations are being taken in Observatory Bay on board the *Volage* and by the sappers on shore.

Corresponding with the unlooked-for superiority in climate, a difference is noticeable in the vegetation of this part of the island. Some plants which occur at both extremities of the country display in Royal Sound marks of luxuriance. For instance, *Pringlea antiscorbutica*, which is elsewhere apetalous, here in sheltered places frequently develops petals ; some flowers in the same inflorescence possessing one petal only, others having two, three, or four. And the petals are not always of a pale greenish colour, but occasionally are tinged with purple. Again, *Lomaria alpina*, which is mentioned in the flora as rare in the neighbourhood of Christmas Harbour, is excessively common and very finely grown here. There are also more species of flowering plants and of the higher orders of *Cryptogamia* here than were found by the Antarctic Expedition at the north of the island. But there are fewer species of mosses, lichens, and algae. Their paucity, in comparison with those of the other district, is probably due to the nature of the rocks on land, and to the seclusion of the bay from the open sea. The additions to the flora are for the most part Falkland Islands species.

In speaking of the climate, it may be mentioned that the plants of Kerguelen's Island are not (as was supposed) in flower throughout the year ; but probably some of them do not cease flowering until late in the winter. When we first arrived in Royal Sound the ground was covered with snow, and scarcely

\* "First Report of the Naturalist attached to the Transit of Venus Expedition to Kerguelen's Island, December 1874." By the Rev. E. A. Eaton. Communicated by the President. A letter to the Secretary of the Royal Society, dated Royal Sound, Kerguelen's Island, 31st December, 1874. Read April 8.